

REMARKS

Prior to this Amendment claims 1-14 and 21-26 were pending in the present Application. Applicant has cancelled claim 24 without prejudice and has added new claims 27-29.

Examiner has objected to claims 21-26 for stated informalities. Applicant has corrected these informalities with suitable amendment of claims 21 and 22.

Examiner has rejected claims 1-14, 21, 22, and 24-26 under 35 U.S.C. §103(a) as being unpatentable over published U.S. Patent Application No. 2002/0029214 by Yianilos et al. ("Yianilos") in view of U.S. Patent No. 7,054,618 to McCullough ("McCullough"). Yianilos discloses a database system that includes the ability to synchronize data between a primary database and a secondary database within a specified key range. In order to appreciate the improvement offered by Yianilos, one must consider that Yianilos addresses one large database of similar files (see paragraphs [0003] and [0004]) that is segmentable into range intervals (see paragraph [0009]) and subsequently sub-segmentable (see penultimate sentence of paragraph [0083]). Yianilos attempts to minimize the number of bits transferred across a network by minimizing the number of communication rounds taken by the database synchronization protocol. See paragraph [0080]. "The synchronization operation takes at most $O(\log n)$ communication rounds to *identify* each discrepancy, where n is the total size of the two databases restricted to the given key interval." Paragraph [0084], emphasis added. Yianilos selectively employs two techniques of hashing, a Get_All_Hashes operation and a

Get_Interval_Hashes operation. "The choice of these parameters to a very large extent determines the actual network traffic generated and the number of communication rounds taken...Note that the objective of the synchronization protocol is not only to minimize the amount of network traffic generated, but also to keep the number of communication rounds within reasonable limits." Paragraph [0085]. Simply stated, when obtaining summaries and digests from Yianilos' secondary (remote) database in identifying database discrepancies, the Get_Interval_Hashes command yields a lesser amount of data but spreads the transmission over more rounds of communication channel traffic, while the Get_All_Hashes command yields more data, but over fewer rounds of communication channel traffic. "[T]he two parameters above need to be tuned to suit different applications and conditions." Last sentence, paragraph [0085].

Yianilos' synchronization uses the Get_Interval_Hashes command (consisting of a key interval, number of records, and a hash of a fixed digest of all of the records in a selected key interval partition of the database – see paragraph [0070]) to provide information over that selected key interval to the local side for comparison to the locally generated equivalent. If there is a mismatch, the size of the remote database in the interval is checked and either a Get_All_Hashes command (comprising key and a hash of a fixed digest of the record – see paragraph [0070]) or a Get_Interval_Hashes command is used to return information from the remote database, depending upon how a Yianilos algorithm decides upon minimum network traffic. See paragraph [0083]. "Once the discrepancies are identified, only those records are

transferred which need to be transferred to make the databases synchronized" Paragraph [0081].

In contrast, Applicant's invention, as now claimed in the independent claims 1, 21, and 22, includes a plurality of databases. When Applicant's system requires synchronization, as stimulated by a synchronization trigger (claim 22), Applicant's mobile node generates hash information based upon data contained in the databases and transmits this information to the network part. Thus, it is all of the hashed representative values of all of the databases at the mobile node that are transmitted once in the first responsive hash technique. This first hash technique is less computationally-intensive and forms a hash that requires lesser amounts of channel capacity than a second hash technique (claim 21). If a mismatch between the mobile node and the network part is detected, a second hash technique (of the key fields and of the record fields) is requested of all of the records in those particular databases that are indicated to be in a mismatch condition. This second technique hash is transmitted in the one transmission to the network part. When a given record is determined to be in mismatch at the network part, the mobile note is requested to fetch that record and transmit it to the network part (claims 1 and 22).

It is clear from the foregoing that Applicant's claimed invention is patentably distinct from the teachings of Yianilos, beginning with the nature of the databases involved. Applicant, for the first transmission of hashed database information transmits hashed representative values for all of Applicant's claimed databases. Initially, Yianilos transmits

hashed database information of a summary of all records but only for a preselected key interval of the one Yianilos database. Applicant, for the second transmission of hashed database information, transmits information that is representative of information in all of the records in the set of databases that are determined to be out of match. Yianilos, however, transmits for the second hashed database information either a fixed digest of all records in the previously preselected interval or a summary of fixed digests for all records in sub-intervals of the predetermined interval, depending upon a minimum network traffic algorithm involving multiple transmissions. Thus, Yianilos does not teach that only those databases that are out of match (or, in Yianilos' language, only those intervals or sub-intervals that are out of match) as determined from the first hash information are those that are to be selected for transmission as the second hash information. Moreover, since Yianilos anticipates multiple transmissions of the hashed information and desires to minimize the network capacity used for all of the transmissions, Yianilos does not teach the simple limitation that the first hash information be required to employ less communication channel capacity than the second hash information (claim 21).

Examiner has stated that the content receiver (claim 1) and/or the first database being implemented in extensible mark-up language (XML) format (claims 1 and 21) are not disclosed by Yianilos. McCullough has been added in combination with Yianilos to provide the missing elements, presumably according to known methods to predictably yield Applicant's claimed invention. McCullough notwithstanding, the combination does not yield Applicant's claimed invention, since Applicant's claimed elements described above have not

been taught by Yianilos or McCullough, taken alone or in combination. Accordingly, a rejection under §103 under the two cited references is improper. Furthermore, dependent claims 2-14, and 24-26, dependent upon these independent claims are also believed improperly rejected.

With regard to claim 21, Examiner has stated that having multiple databases is a mere duplication of the essential working parts of a device. Applicant respectfully disagrees for the reasons stated above. Applicant transmits the hash information for representative values of all of the databases in the first hash technique (unlike Yianilos, which transmits only a predetermined interval of a single database). In Applicant's second hash technique, only a hash of those records in selected databases, i.e., those whole databases that have been shown to be in mismatch from the first hash technique, are transmitted (unlike Yianilos, which continues to work with the preselected interval). Thus, Applicant uses whole databases which are in mismatch as a way of whittling down the volume of data being transmitted in the second hash technique.

With regard to claims 25 and 26, Examiner has indicated that Yianilos teaches a synchronization trigger. Yianilos teaches that synchronization is to occur "periodically". Paragraph [0013]. Applicant now claims that a trigger is more than merely a matter of time. Specifically, Applicant has identified the triggers as a field mapping listing change and a restore operation performed upon at least one database at the mobile node. Yianilos teaches only a temporal trigger.

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Examiner has rejected claim 23 under 35 U.S.C. §103(a) as being unpatentable over Yianilos in view of McCullough ("McCullough") and further in view of U.S. Patent No. 6,138,158 to Boyle et al. ("Boyle "). Claim 23 is dependent upon an independent claim that is presumed allowable and therefore claim 23 is, itself, presumed allowable.

Therefore, in light of the foregoing amendment and remarks, Applicant believes independent claims 1, 21, and 22 and dependent claims 2-14 and 23-29 to be in a condition suitable for allowance. Examiner is respectfully urged to withdraw the objection and rejections under §103, reconsider the present Application, and pass the present Application, as amended, to allowance.

Respectfully submitted,

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